DOKUKIN, A.V., prof., doktor tekhn.nauk, red.; KOZIN, Yu.V., inzh., red.; LIVSHITS, I.I., kand.tekhn.nauk, red.; MEL'KUMOV, L.G., inzh., red.; SNAGOVSKIY, Ye.S., kand.tekhn.nauk, red.; GRINSHPUN, L.V., inzh., red.; MIRSKAYA, V.V., red.izd-va; ALADOVA, Ye.I., tekhn. red.; SHKLYAR, S.Ya., tekhn.red.

[Automation in coal mining]Avtomatizatsiia v ugol'noi promyshlennosti. Ugletekhizdat, 1959. 221 p. (MIRA 12:8)
(Automation) (Coal mines and mining)

LIVSHITS, I., kand.tekhn.nauk

Unsolved automatization problems. Mast.ugl. 8 no.9:3-4 S '59. (MIRA 13:2)
(Automatic control)
(Mining engineering)

LIVSHITS, I.I., kand.tekhn.nauk

Immediate tasks in the automatization of coal mining operations.
Ugol' 35 no.10:26-29 O'60. (MIRA 13:10)
(Coal mines and mining--Equipment and supply)
(Automatic control)

BOYKO, A.A., inzh.; DRUKOVANYY, M.F., kand. tekhn. nauk; BABOKIN, I.A., inzh.; ZAYTSEV, A.P., inzh.; POLESIN, Ya.L., inzh.; SOBOLEV, G.G., inzh.; ZHUKOV, V.V., kand. tekhn. nauk; TOPCHIYEV, A.V., prof.; VEDERNIKOV, V.I., kand. tekhn. nauk; OKHRIMENKO, V.A., kand. tekhn. nauk; MELAMED, M.Z., kand.tekhn. nauk; KUZNETSOV, K.K., inzh.; RABINOVICH, I.A.; YASNYY, V.K., inzh.; LIVSHITS, I.I., kand. tekhn. nauk, rersenzent; BARANOV, A.I., inzh., retsenzent; LOMILINA, L.N., tekhn. red.

[Brief handbook of a coal mining engineer] Kratkii spravochnik gornogo inzhenera ugol'noi shakhty. Moskva, Gosgortekhizdat, 1963. 639 p. (MIRA 17:3)

L 04710-67 EWT(d)/EWT(m)/EWP(w)/EWP(t)/EWP(v)/EWP(k)/EWP(h)/EWP(l) IJP(c) JG/JM

ACC NR: AP6031278 SOURCE CODE: UR/0229/66/000/008/0024/0026

AUTHOR: Alekseyev, V. V.; Livshits, I. I.; Lysin, V. L.

ORG: none

TITLE: Several reasons for fractures in hydrofoil propeller shafts

SOURCE: Sudostroyeniye, no. 8, 1966, 24-26

TOPIC TAGS: hydrofoil, shipbuilding engineering

ABSTRACT: Fractures in the conical ends of hydrofoil propeller shafts (under the propeller hubs) have led to tensometric studies of the port shaft of a twin-screw hydrofoil. Measurements were made on three shaft sections (see Fig. 1) while proceeding on a straight course and at various course angles when turning; force 1 to 3 [3 to 10 knots per hour] winds and 0.25- to 1.25-m waves prevailed.

Curves representing measured stresses relative to rpm showed a sinusoidal character, with two sharp rises occurring as the vessel lifted onto its fore and aft foils; stresses at low rpm showed maximum values in the vertical plane, and in the horizontal plane at high rpm. The characteristics of the measured oscillations indicated that beginning at a certain speed a bending moment arose due to the eccentrically acting propeller

Card 1/3

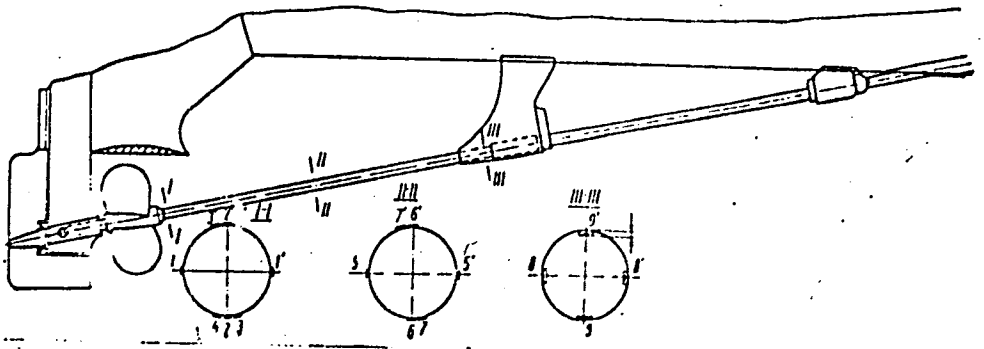

Fig. 1. Hydrofoil twin-screw shafting arrangement

I-I, II-II, III-III - Measured sections; 1-1 to 9-9 - locations of pairs of tensometers.

thrust in the horizontal plane and the Magmus effect, both acting in the same direction.

As to the above-mentioned fracture, fatigue tests with the shaft material revealed an insufficient safety factor for this section of the shaft. In air, a smooth specimen of the shaft material showed a two times higher fatigue strength than in sea water. The presence of two stress con-

L 04710-67

ACC NR: AP6031278

centrations in the conical part of the shaft, i.e., at the keyway and where the propeller hub is fitted, are important in determining the safety factor. To avoid an excess stress concentration, the propeller must be fitted hydraulically; to increase the fatigue strength the conical hub-shaft fitting must be reliably sealed against sea water. Orig. art. has: 2 figures, 2 formulas and 2 tables. [ATD PRESS: 5087-F]

SUB CODE: 13 / SUBM DATE: none / ORIG REF: 003

Card 3/3

LIVSHITS, I.Kh.

Some prodromal symptoms in myocardial infarct. Vrach.delo no.2:183-185 F '59. (MIRA 12:6)

1. Pyatoye Chernovitskoye gorodskoye lechebnoye ob"edineniye.
(HEART--INFARCTION)

LIVSHITS, I.Kh.

Diagnosis of disturbances of coronary circulation and myocardial infarct. Vrach.delo no.12:1255-1258 D '59. (MIRA 13:5)

1. Pyatoye Chernovitskoye gorodskoye lechebnoye ob"yedineniye (nauchnyy rukovoditel' raboty - prof. V.L. Khenkin).
(CORONARY VESSELS--DISEASES) (HEART--INFARCTION)

LIVSHITS, I.Kh.

Outpatient treatment of stenocardia by restrosternal novocaine anesthesia. Vrach. delo no.10:135-136 O '61. (MIRA 14:12)

1. 1-oye Chernovitskoye gorodskoye klinicheskoye lechebnoye ob"yedineniya, nauchnyy rukovoditel' - prof. V.L.Khenkin.
(ANGIA PECTORIS) (NOVOCAINE)

LIVSHITS, I.L. (Vladivostok)

Reconstruction of the tongue. Stomatologiia 37 no.1:73-75 Ja-F '58.
(TONGUE--SURGERY) (MIRA 11:3)

LIVSHITS, I.L. (Vladivostok)

Ranula in the newborn. Stomatologiia 38 no.2:57-58 Ap '59. (MIRA 12:7)
(MOUTH--TUMORS)

LIVSHITS, I.L. (Vladivostok)

Method of performing radical uranoplasty. Stomatologiia 42 no.4:55-57 Jl-Ag'63 (MIRA 17:4)

LIVSHITS, I.M.

Improved hair cutter for brush filling machines. Obm. tekh. opyt. [MLP] no.29:30-33 '57. (MIRA 13:11)
(Brush industry--Equipment and supplies)

LIVSHITS, I.M.

Mechanization of the finishing of brush backs with nitro lacquers. Obm. tekh. opyt. [MLP] no.29:33-42 '57.
(MIRA 11:10)
(Brush industry--Equipment and supplies)

LIVSHITS, I. M.

USSR/Engineering Nov 48
Construction Industry
Stacks, Smoke-

"Erection of Steel Smokestacks," A. Z. Tsifrinovich, Engr, Laureate of Stalin Prize, V. D. Arshkovich, I. M. Livshits, Engineers, 5½ pp

"Stroitelʹ Prom" No 11

"Stalmontazh" Trust has been responsible for erecting many steel smokestacks. Briefly describes experience gained and optimum methods. Engineering data necessary for the raising of separate sections of steel smokestacks.

PA 20/49T67

GAL'TSOV, A.D.; DENISYUK, I.N.; LEVANDOVSKIY, S.N.; LOSEV, A.G.; PEZIK, M.O.; PETROCHENKO, P.F.; SAVOS'KIN, N.M.; TRUBITSKIY, G.R.; KHISIN, R.I.; KHROMILIN, V.A.; ALEKSEYEV, S.S., retsenzent; GAL'PERIN, L.I., retsenzent; GRANOVSKIY, Ye.N., retsenzent; ZAKHAROV, N.N., retsenzent; KVASHNIN, S.A., retsenzent; KEREKESH, V.V., retsenzent; KOTENKO, I.N., retsenzent; LIVSHITS, I.M., retsenzent; LERNER, G.V., retsenzent; NEVSKIY, B.A., retsenzent; NOVIKOV, V.F., retsenzent; RAZAMAT, E.S., retsenzent; SERGEYEV, A.V., retsenzent; STEFANOV, V.P., retsenzent; TOLCHENOV, T.V., retsenzent; FEDOTOV, F.G., retsenzent; VOL'SKIY, V.S., red.; STRUZHESTRAKH, Ye.I., red.; USPENSKIY, Ya.K., red.; SEMENOVA, M.M., red.izd-va; MODEL', B.I., tekhn.red.

[Handbook for work-norm experts in machine manufacture] Spravochnik normirovshchika-mashinostroitelia v 4 tomakh. Moskva, Gos.nauchno-tekhn.izd-vo mashinostroit.lit-ry. Vol.1. [Fundamentals of technical normalization] Osnovy tekhnicheskogo normirovaniia. 1959. 676 p. (MIRA 12:12)

(Standardization)

VINOGRADOVA, N.B.; KHROMOV-BORISOV, N.V.; KOZHEVNIKOV, S.P.; LIVSHITS, I.M.

Derivatives of imidazoledicarboxylic acids. Part 2: Dimethyldiamides of 1-alkylimidazole-4, 5-dicarboxylic acids. Zhur.ob.khim. 31 no.5: 1471-1476 My '61. (MIRA 14:5)

1. Institut eksperimental'noy meditsiny AN SSSR.
(Imidazoledicarboxylic acid)

LIVSHITS, I. M. and KRASNIK, M. G.

"Problem of Constructing Curves of Fit (Assurance) for Phase-Homogeneous Water Levels"
Sb. Nauch. Rabot In-ta Melioratsii, Vod. i Bolot. Kh-va AN USSR, ?, 73-92, 1953

The author clarifies the problems of the connection between the parameters governing the curves of fit (assurance) for phase-homogeneous levels and the discharge of water, and gives some suggestions for the use of these relationships in the construction of such curves. (RZhGeol, No 3, 1954)

SO: W-31187, 8 Mar 55

"Procedure for the Typization of the Runoff Regime With the Year" Trudy In-ta Melioratsii, Vodnogo i Bolotnogo Kh-va AN BSSR, 3, 100-159, 1953

The author presents a method for constructing the typical graphs of the mean monthly discharges for the average, according to water quantity, low-water year and high-water year. The principles of typization (in agreement with certainty) are realized not only for the year as a whole but also for the individual seasons. Examples of the computation are conducted for the Pripyat river and Mozyr city. (Referat Zhur Geol, No 6, 1954)

SO: Sum. 492, 12 May 55

LIVSHITS, I.M., kandidat tekhnicheskikh nauk.

Seasonal and monthly variations in the discharge of rivers in Polesye. Trudy Inst.mel.,vod.i bol.khoz.AN BSSR 6:60-150 '55.

(Polesye--Stream measurements)

LIVSHITS, I.M., kandidat tekhnicheskikh nauk.

Probable daily discharge of Polesye rivers. Trudy Inst.mel., vod.i bol.khoz.AN BSSR 6:151-181 '55. (MLRA 9:10)

(Polesye--Stream measurements)

14(9) SOV/143-59-3-19/20

AUTHOR: Brovkovich, G.N., Candidate of Technical Sciences, Docent; Livshits, I.M., Candidate of Technical Sciences, Docent

TITLE: The Determination of the Mean Flow Velocity by Instantaneous Velocities (Ob opredelenii sredney skorosti potoka po mgnovennym skorostyam)

PERIODICAL: Izvestiya vysshikh uchebnykh zavedeniy - Energetika, 1959, Nr 3, pp 150-153 (USSR)

ABSTRACT: Usually, time-averaged values of pulsating velocities at different points of a flow are used for determining the mean flow velocity in a useful section. The authors established that instantaneous velocities may be used instead of averaged velocities, providing that there is an adequate number of measuring points. The error caused by this exchange will be small due to the compensation effect. Thereby, in a number of cases, the necessity of using time-averaged point velocities will be eliminated and the mean velocity in a useful section may be calculated by instantaneous

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The Determination of the Mean Flow Velocity by Instantaneous Velocities

point velocities. The aforementioned compensation will occur in case the instantaneous velocities are independent random values for the different points. The authors determine root-mean-square value of the difference $V-\overline{V}$ designated by σ_v. Designating the means velocity in a useful flow section by $\overline{V}$, determined by some methods of time-averaging the point velocities, and the mean velocity by V, determined by the same method, but using the instantaneous velocities at the same points, the authors present two formulae for $\overline{V}$ and V:

$$\overline{V} = \sum_{k=1}^{n} \alpha_k \overline{V}_k , \qquad V = \sum_{k=1}^{n} \alpha_k V_k$$

V_k - instantaneous velocities of a flow at points with the number k; $\overline{V}_k$ - time averaged values at the same points; n - number of points for the entire

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The Determination of the Mean Flow Velocity by Instantaneous Velocities

useful section; a_k - factor, depending on the quadrature formulae used for determining the mean velocity in the vertical, on the number and location of the latter and one the shape of the useful section. Taking into consideration that the measurements of the velocities V_k at neighboring points is performed at intervals adequate for an essential change of the pulsating velocity, amounting usually to a fraction of a minute. Then, the velocity V_k may be considered as a random value and in this case

$$DV = \sum_{k=1}^{n} a_k^2 DV_k$$

whereby D is the dispersion of the value under consideration. This formula may be written in the following manner:

$$\sigma_V^2 = \sum_{k=1}^{n} a_k^2 \sigma_{V_k}^2$$

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The Determination of the Mean Flow Velocity by Instantaneous Velocities

If $u_k = \frac{\quad}{V_k}$ then $\sigma_V = \sqrt{\frac{\quad}{k}}$

The magnitude of the relative mean square error will be

$$\frac{\quad}{V}$$

The authors present a table with data of pulsation velocity characteristics for different arms of the Mississippi river, compiled by A.A. Kalinske [Ref 5] for the Second Hydraulic Conference, University of Iowa, 1943. The authors state that additional experi-

The Determination of the Mean Flow Velocity by Instantaneous Veclocities

mental investigations are required, especially of pulsation velocity changes under different conditions in an open flow and under an ice cover. There are 1 table and 5 references, 1 of which is American and 4 Soviet.

ASSOCIATION: Leningradskiy politekhnicheskiy institut imeni M.I. Kalinina (Leningrad Polytechnic Institute imeni M.I. Kalinin) Kafedra gidrologii i vodosnabzheniya BPI - Belorusskiy politekhnicheskiy institute (Chair of Hydrology and Water Supply of BPI - Belorussian Polytechnic Institute)

SUBMITTED: December 22, 1958

Card 5/5

LIVSHITS, I.M.; MELESHKEVICH, V.I., student; GRIBOVSKIY, V.K.; student

Using average monthly discharges for determining the certain annual runoff of rivers in the White Russian S.S.R. Sbor. nauch. trud. Bel. politekh. inst. no.78:128-140 '60. (MIRA 14:11)
(White Russia--Runoff)

KAZANTSEV, Anatoliy Mikhaylovich, kand. tekhn. nauk, dots; Prinimali uchastiye: LIVSHITS, I.M., inzh.; MAKAR'YEVSKIY, D.P., inzh.; GUSEV, M.N., kand. tekhn. nauk, dotsent, retsenzent; SHEVALDYSHEV, L.G., inzh., retsenzent; BARIT, G.Yu., red.; VOLCHOK, K.M., tekhn. red.

[Technical norms in shipbuilding and ship repairs] Tekhnicheskoe normirovanie v sudostroenii i sudoremonte. Leningrad, Izd-vo "Rechnoi transport," 1962. 383 p. (MIRA 15:5)
(Shipbuilding—Production standards)
(Ships—Maintenance and repair—Production standards)

S/191/62/000/004/005/017
B110/B138

15.8080

AUTHORS: Gunder, O. A., Livshits, I. M.

TITLE: Investigation of polycaprolactam powders

PERIODICAL: Plasticheskiye massy, no. 4, 1962, 12-15

TEXT: The authors studied the physical and chemical characteristics of polycaprolactam powders obtained by various methods of reprecipitation. Adhesion to a metal surface was also determined. Polycaprolactam powder was produced: (1) by dissolving in acetic acid, (2) melting in glycerin, and (3) precipitating from hydrochloric acid (s.w. 1.19) by means of aqueous acetone (3:7). The degree of dispersion of the powder depends on the polarity and concentration of the precipitating agent. It increases up to 30-35 % concentration and becomes constant when the capron surface is fully covered with acetone molecules. The yield is 95-96 %. Powders precipitated from hydrochloric acid solution polymerize only slightly less than the initial caprolactam. This is less for powder recrystallized from acetic acid, and still less after melting in glycerin. In this case the polymer is destroyed and macromolecules are formed with one-half or

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one-third of the initial degree of polymerization. The powder structures were studied (1) by differential thermographic analysis with a MK-55 (PK-55) photorecording pyrometer and chromel/alumel thermocouple, and (2) by polarization microscopy. Two endothermic effects were observed: (1) due to removal of water, (2) due to the capron melting and passing into the viscous flow state. A distinct peak and a break in the thermogram for powder reprecipitated from acetic acid with slow cooling indicate crystalline structure. Distinct minima in the thermogram for capron from acetic acid with rapid cooling, and capron from hydrochloric acid, point to a phase transformation, but only in a certain temperature range, as indicated by the blurred peak and a flat break on the curve from a simple recording. The blurred peak is probably associated with a higher concentration of the amorphous phase than is the distinct peak. Comparing thermograms for powders with different degrees of dispersion it is suggested that crystallinity and spherolite dimensions increase with decreasing degree of dispersion. Polarization-microscopic studies showed spherolites for recrystallized caprolactam, and a fine-grained structure for caprolactam precipitated from aqueous acetone solution. There are 3 figures and 2 tables.

GUNDER, O.A.; LIVSHITS, I.M.

Investigation of polycaprolactam powders. Plast.massy no.4: 13-15 '62. (MIRA 15:4)
(Polyamides)

ACC NR: AP6033311 SOURCE CODE: UR/0413/66/000/018/0143/0143

INVENTOR: Dukarevich, I. S.; Livshits, I. M.

ORG: none

TITLE: Method of protection of part surface during electrolytic boronizing. Class 48, No. 186247

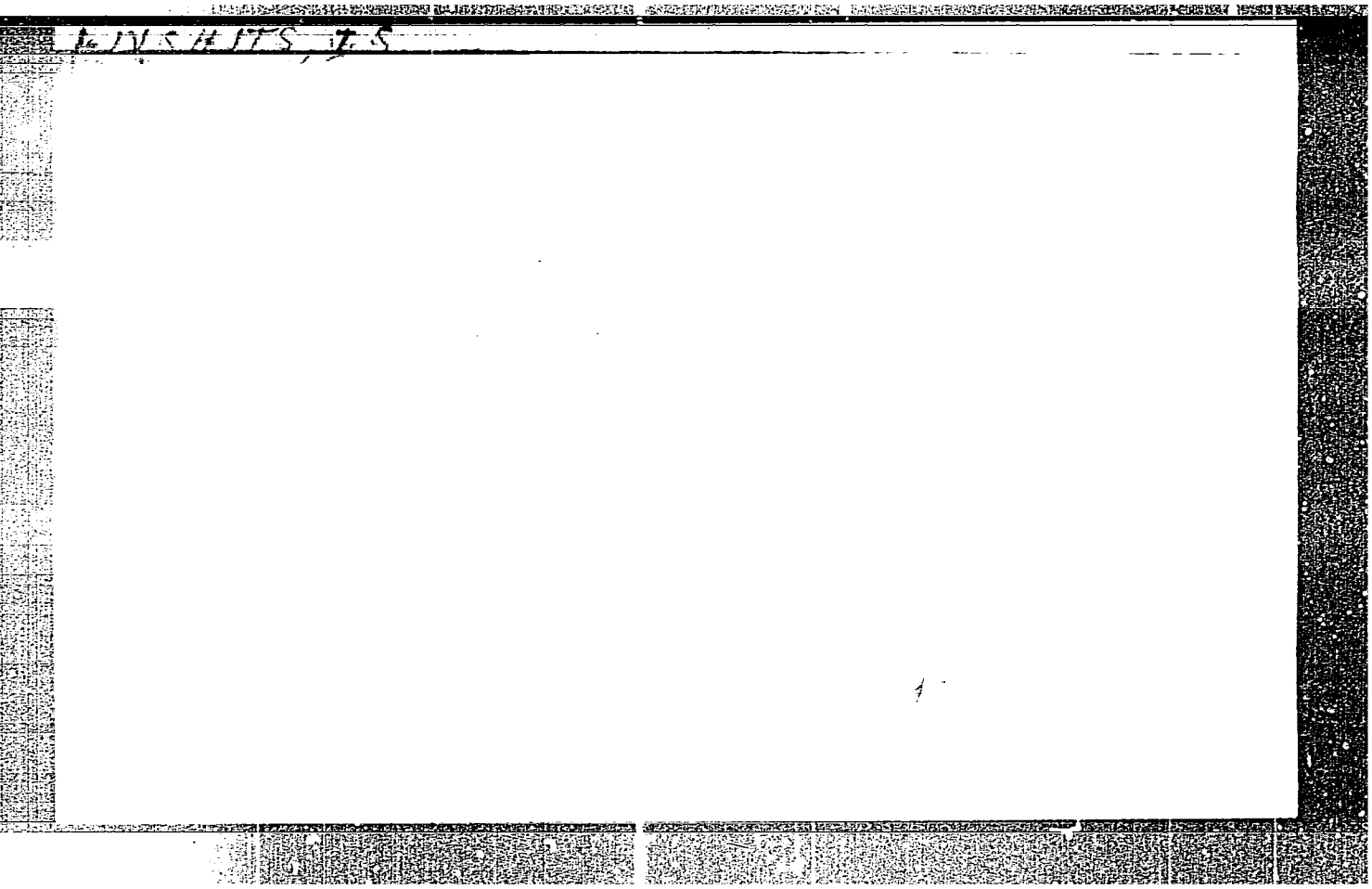
SOURCE: Izobret prom obraz tov zn, no. 18, 1966, 143

TOPIC TAGS: metal coating, protective coating, CHROMIUM PLATING, METALLURGIC PROCESS

ABSTRACT: This Authors Certificate introduces a method for protecting part surfaces during electrolytic boronizing. An effective and reliable insulation is provided by an electrolytic chromium coating of a minimum thickness of 20 μ.

SUB CODE: 11/ SUBM DATE: 29Jul63/

Card 1/1 UDC: 621.793.52



LIVSHITS, I. S.

PA 162T8

USSR/Electricity - Transmission Lines Jun 50
Power Hammers

"Use of Diesel Power Hammers for Pile Driving When Constructing Power Transmission Lines," I. S. Livshits, Engr

"Elek Stants" No 6, pp 46-47

Describes operation of DB-45 type diesel power hammer used for driving piles of diameter up to 24 cm and length up to 5 m. These hammers are being made by plants of Glavsel'elektro (Main Adm for Rural Electrification), Min of Agr (USSR). Details UR -500 [illegible] type diesel hammer used for large diameter piles. Mounting for this hammer is produced at the Artemovsk plant of Glavdorupr (Main Highway Adm) Ukrainian SSR.

LIVSHITS, I. S.

USSR/Engineering - Hydraulic Engineering, Grounds May 51

"Hydraulic Construction Works Under Conditions of Diatomaceous Grounds," I. S. Livshits, Engr

"Gidrotekh Stroi" No 5, pp 33-35

Describes construction of feeding canal of Pogorel'skaya hydroelec power station and discusses generally chem compn and properties of diatomites and possibility for using them as construction material.

199T46

LIVSHITS, I.S., inzh.

Filling in a dam on the Caspian Sea. Transp.stroi. 9 no.3:23-25 Mr. '59. (MIRA 12:4)
(Caspian Sea--Dams)

LIVSHITS, I.S., inzh.

Subterranean conduits made of precast reinforced concrete. (MIRA 12:5)
Elek. sta. 30 no.3:47-48 Mr '59.
(Precast concrete construction)
(Power engineering)

LIVSHITS, Iosif Solomonovich; FLEKSER, Ya.N., red.; KONARDOVA, T.F., red.izd-va; PARAKHINA, N.L., tekhn.red.

[Protection against the run of ice and high waters] Zashchita ot ledokhoda i vysokikh vod. Moskva, Gosles bumizdat, 1961. 110 p. (MIRA 14:6)
(Ice on rivers, lakes, etc.) (Flood control)

LIVSHITS, I.S.

"Peat in construction," by F.P. Vinokurov, A.E.Teterkin, M.A. Piterman. Reviewed by I.S. Livshits. Osn., fund. i mekh. grun. 3 no.4:32 '61. (MIRA 14:8)
(Peat) (Vinokurov, F. P.) (Teterkin, A. E.) (Piterman, M.A.)

LIVSHITS, I. S.

Embankments of chalk rocks. Avt. dor. 25 no.10:8-9 O '62.
(MIRA 15:10)

(Embankments) (Chalk)

LIVSHITS, L.S., inzh.

Injector mixer [illegible]

Stroi. mat. 11 no.[illegible] p. 14. [illegible]

LIVSHITS, I.S., inzh.

Lightweight, quick-release pipeline couplings. Gor. zhur. no.7: 67 Jl '64. (MIRA 17:10)

1. Trest Gidromekhanizatsiya.

SOV/124-57-4-4623

Translation from: Referativnyy zhurnal. Mekhanika, 1957, Nr 4, p 108 (USSR)

AUTHOR: Livshits, I. Ye.

TITLE: The Calculation of Prismatic, Hinged, Hipped Structural Elements With Intermediate Point Supports (Raschet prizmaticheskikh sharnirnykh skladok s promezhutochnymi tochechnymi oporami)

PERIODICAL: Nauch. tr. Leningr. inzh.-stroit. in-ta, 1956, Nr 23, pp 134-146

ABSTRACT: The author adduces an analytical calculation method, utilizing the force method, of hipped structural systems with linear hinges on the ribs and with various forms of supports of the sides at the ends and of intermediate point supports along their respective spans.

A. K. Mroshchinskiy

Card 1/1

SOV/124-57-4-4628

Translation from: Referativnyy zhurnal. Mekhanika, 1957, Nr 4, p 108 (USSR)

AUTHOR: Livshits, I. Ye.

TITLE: Strain-compatibility Equations for a Many-sided Hinged Joint in a Hipped Structure (Uravneniya sovmestnosti mnogogrannogo sharnirnogo uzla skladki)

PERIODICAL: Nauch. tr. Leningr. inzh.-stroit. in-ta, 1956, Nr 23, pp 171-177

ABSTRACT: Bibliographic entry

Card 1/1

SOV/124-58-8-9244

Translation from: Referativnyy zhurnal, Mekhanika, 1958, Nr 8, p 130 (USSR)

AUTHOR: Livshits, I.Ye.

TITLE: Some Related Problems in Theoretical and Structural Mechanics (Nekotoryye smezhnyye voprosy teoreticheskoy i stroitel'noy mekhaniki)

PERIODICAL: Sb. nauchn. tr. Leningr. inzh.-stroit. in-t, 1957, Nr 26, pp 314-328

ABSTRACT: Bibliographic entry

Card 1/1

SOV/124-57-8-9551

Translation from: Referativnyy zhurnal. Mekhanika, 1957, Nr 8 p 139 (USSR)

AUTHOR: Livshits, I. Ye.

TITLE: Concerning the Lateral Displacements of a Beam Being Acted Upon by a Variable Force (O poperechnykh peremeshcheniyakh balki pri deystvii peremennoy sily)

PERIODICAL: V sb.: 15-ya nauchn. konferentsiya Leningr. inzh.-stroit. in-ta, Leningrad, 1957, pp 444-445

ABSTRACT: Bibliographic entry

Card 1/1

LIVSHITS, I.Ye., dotsent, kand.tekhn.nauk

More about the theorem of complementary acceleration. Shor. nauch. trud. LISI no.3:242-246 '59. (MIRA 13:7)
(Motion)

LIVSHITS, I.Ye., dotsent, kand.tekhn.nauk (Leningrad)

Using the kinematic method in investigating the mobility and designing three-dimensional structures. Rasch.prostr.konstr. no.6:115-138 '61. (MIRA 15:3)
(Structures, Theory of)

LIVSHITS, I. Z.

LIVSHITS, I. Z., and PUPYSHEVA, L. I. "Canker of Fig and Measures for its Control," Sad i Ogorod, no. 3, 1949, pp. 25-27. 80 Sal3

SOURCE: SIRA 5(6)-53, 15 Dec. 1953

24139 LIVSHITS, I. Z. Maslinnaya listobloshka Euphyllura olivina C. Costa (Homoptera; Psyllidae) i mery bor'by S ney. Trudy Gos. In Nikitskogo Botan. Sada im. Molotova, T. XXIV, VYP. 4, 1949, S. 3-15.

SO: Letopis, No. 32, 1949.

24148 LIVSHITS, I. Z. Opyt primeneniya preparata DDT v bor'be s kazarkoy (Rhynchites bacchus L.) Trudy Gos. Nikitskogo botan. sada im. Molotova, T. XXIV, VIP. 4, 1949, S. 17-29. - Bibliogr: S. 28-29.

SO: Letopis, No. 32, 1949.

24157 LIVSHITS, I. Z. Samshitovaya minirutsshchaya mushka Monarthropalpus buxi lab i mery bor'by s ney. Trudy Gos. Nikitskogo botan. sada im. Molotova, T. XXIV, VYP. 4, 1949, s. 31-45. - Bibliogr: s. 44-45.

SO: Letopis, No. 32, 1949.

LIVSHITS, I. Z.

24149 LIVSHITS, I. Z. K biologii vozbuditelya raka inzhira Phomopsis cinerascens (Sacc.) Trav. Trudy Gos. Nikitskogo botan. sada im. Molotova, T. XXIV, Vyp. 4, 1949, S. 67-76.

SO: Letopis, No. 32, 1949.

LIVSHITS, I. Z.

Mites

Controlling fruit mites. Sad i og. No. 2, 1953.

Monthly List of Russian Accessions, Library of Congress, June 1953. Unclassified.

USSR/General and Specialized Zoology - Insects. P.

Abs Jour : Ref Zhur - Biol., No 8, 1958, 35327

Author : Livshits, I.Z., Petrushkova, N.I.
Inst :
Title : To the Biology and Morphology of the Hawthorn Mite Tetranychus crataegi Hirst.

Orig Pub : Byul. nauchno-tekhn. inform. Gos. Nikitsk, botan. sad, 1957, No 2, 3-6.

Abstract : Morphological description and Basic Data on the Biology of the Hawthorn Mite in Krimea Oblast' were given.

Card 1/1

LIVSHITS, I. Z.

USSR/General and Special Zoology. Insects. Injurious Insects and Ticks. Pests of Fruit and Berry Crops P

Abs Jour : Ref Zhur - Biol., No 11, 1958, No 49629

Author : Livshits I.Z., Petrusheva N.I., Parfenov A.T. Maksimov F.N.

Inst : State Nikita Botanical Garden

Title : New Acaricides in the Control of the Brown Fruit Mite (Preliminary Report).

Orig Pub : Byul. nauchno-tekhn. inform. Gos. Nikitsk. botan. sad, 1957, No 2, 7-12

Abstract : Ether sulfonate of 0.2-0.3% is highly toxic against the eggs and larvae of the mite and retains its action for a long time. The most suitable time for spraying are the periods of the emergence of first and second generation larvae. The use of DDT suspension against the leaf-roller moth was combined with acaricide

Card : 1/2

LIVSHITS, I.Z.

USSR/General and Special Zoology. Insects. Injurious In- P
sects and Ticks. Pests of Fruit and Berry Crops

Abs Jour : Ref Zhur - Biol., No 11, 1958, No 49631

Author : Livshits I.Z., Galetenko S.M.
Inst : State Nikita Botanical Garden
Title : Systemic Poisons in the Control of Sucking Pests of Fruit and Decorative Plants

Orig Pub : Byul. nauchno-tekhn. inform. Gos. Nikitsk. botan. sad, 1957, No 2, 13-17

Abstract : Spraying with 0.025-0.05% Mercaptophos emulsions (according to preparation) completely eliminated the brown fruit mites from the trees in a day and prevented new infection for more than 2 weeks. Treatment with a 0.2% octamethyl solution eliminated the mites from the trees in 5 days, but did not protect the trees for long and destroyed 98.3% of the fifth generation nymphs of the fig leaf flea, preventing the development of their

Card : 1/2

USSR / General and Special Zoology. Insects. Harmful Insects and Arachnids. Pests of Fruit and Berry Cultures. P

Abs Jour: Ref Zhur-Biol., No 14, 1958, 64078.

Author : Livshits, I. Z.; Domanskiy, V. N.
Inst : The State Nikitskiy Botanical Garden.
Title : Dinitro-ortho-cresol Action on the Eggs of the Bryobia Redikorzov.

Orig Pub: Byul. nauchno-techn. inform. Gos. Nikitsk. botan. sad, 1957, No 2, 18-20.

Abstract: DNOCl was used in laboratory experiments. At spring spraying (before opening of the buds) it was used in 0.5, 1 and 2% solutions at relative air humidity. DNOCl was 2.7-5.8 times more effective on the eggs at 80-95% humidity than at 35-45% humidity. The toxic after effect of DNOCl

Card 1/2

USSR / General and Special Zoology. Insects. Harmful Insects and Arachnids. Pests of Fruit and Berry Cultures. P

Abs Jour: Ref Zhur-Biol., No 14, 1958, 64078.

Abstract: on the hatching larvae also increases with the increase of humidity. A 0.06% DNOCl solution is useless in summer spraying: only 76% of eggs hatching larvae perish even at 80-95% humidity, while at 35-45% (this humidity is usual in the summer for Crimea) only 22% perish. An adequate extermination of eggs and larvae in spring (97.6%) at 35-45% humidity was obtained only by using a 2% DNOCl solution. The treatment of one hectare by a 2% DNOCl solution costs 600-800 rubles, the treatment by a mineral-oil emulsion (its effectiveness is not lower than DNOCl) costs 80-100 rubles. -- A. P Adrianov.

Card 2/2

LIVSHITS, I. Z.

USSR/General and Special Zoology. Insects. Injurious In- P
sects and Ticks. Pests of Fruit and Berry Crops

Abs Jour : Ref Zhur - Biol., No 11, 1958, No 49659

Author : Livshits I.Z., Petrushova N.I.
Inst : State Nikita Botanical Garden
Title : The Control of the Lesser Apple Worm and the Increase in the Quantityand Quality of the Apple Crop.

Orig Pub : Byul. nauchno-tekhn. inform. Gos. Nikitsk. botan. sad, 1957, No 2, 24-26

Abstract : Over a period of 3 years, the gardens were sprayed four times against the lesser apple worm with a 0.2% DDT suspension (according to the active substance), and separate sections five times with Paris green. After a DDT treatment, the quantity of fallen fruit before fruit maturation (September 30) was 2-2½ times less than after a treatment with Paris green. In the first case, the

Card : 1/3

Abs Jour : Ref Zhur - Biol., No 11, 1958, No 49659

main mass of fruit (81.4%) remained on the trees till September 30; only the normal in weight, the ripe and healthy fruit fell off. In the second case, the falling off took place during the entire season, andthe fruit that fell off was unsatisfactory both in weight and quality; only 64.9% of the fruit remained on the trees on September 30. However, the fallen fruit represented in the first case 30% of the total crop, and in the second case 38.2% of the total crop. Therefore, the early gathering in of the crop was important. After a DDT treatment, three times as much fruit of the first grade was gathered, and of the second grade 5 times as much fruit than after a Paris green treatment. The cost of poisonous chemicals and of the production per 1 ha in the first case was, respectively,

LIVSHITS, I. Z.

USSR/General and Special Zoology. Insects. Injurious Insects and Ticks. Pests of Fruit and Berry Crops P

Abs Jour : Ref Zhur - Biol., No 11, 1958, No 49653

Author : Livshits I.Z.
Inst : State Nikita Botanical Garden
Title : Tests of Insecticides for Poisoning Trap Belts

Orig Pub : Byul. nauchno-tekhn. inform. Gos. Nikitsk. botan. sad, 1957, No 2, 27-28

Abstract : Ten belts, made from sacks, for the lesser apple worm were each impregnated 1) with a 3% emulsion of the Scientific Research Institute of Fertilizers and Insecticides (SRIFI-100), 2) with a 2% preparation 47, and 3-4) were smeared with 20 and 10% DDT emulsions. In each variation of the insecticide, from July 22 to October 5 (every 5 days), the following numbers of larvae were collected: 729, 250, 119, 205 and in the control 1321, of which 100%, 51.6%, 100% and 87.8% respec-

Card : 1/2

VASIL'YEV, Vadim Petrovich; LIVSHITS, Issakhar Zel'manovich

[Fruit pests] Vrediteli plodovykh kul'tur. Moskva, Gos.izd-vo sel'khoz.lit-ry, 1958. 391 p. (MIRA 12:3)
(Fruit--Diseases and pests)

LIVSHITS, I. Z., kand. sel'skokhoz. nauk; PETRUSHOVA, N. I., kand. sel'skokhoz. nauk; KOROBITSIN, V. G., nauchnyy sotrudnik

Cooperation with collective and state farms. Zashch. rast. ot vred. i bol. 5 no.6:10-13 Je '60. (MIRA 16:1)

1. Gosudarstvennyy Nikitskiy botanicheskiy sad.

(Crimea—Plants, Protection of)
(Crimea—Fruit—Diseases and pests)

LIVSHITS, I.Z.; PETRUSHOVA, N.I., starshiy nauchnyy sotrudnik

In the Nikita Botanical Garden. Zashch. rast. ot vred. i bol. 7 no.10:8-9 O '62. (MIRA 16:6)

1. Zaveduyushchiy otdelom entomologii i fitopatologii Gosudarstvennogo Nikitskogo botanicheskogo sada (for Livshits).
(Nikita(Crimea)—Plants, Protection of—Research)

GUREVICH, Moisey Sergeyevich; LEVIN, G.A., retsenzent; LIVSHITS, Kh.A., retsenzent; ROZOV, V.M., otv. red.; VEYTSMAN, G.I., red.; ROMANOVA, S.F., tekhn.red.

[Radio-signal spectra] Spektry radiosignalov. Moskva, Sviaz'-izdat, 1963. 310 p. (MIRA 16:6)
(Radio waves-Spectra)
(Information theory)

5(3, 4) SOV/63-4-3-7/31

AUTHORS: Zhebrovskiy, V.V., Candidate of Chemical Sciences, Livshits, Kh.M.

TITLE: Water-Emulsion Paints Based on Synthetic Latexes

PERIODICAL: Khimicheskaya nauka i promyshlennost', 1959, Vol 4, Nr 3, pp 333-338 (USSR)

ABSTRACT: Water-emulsion latex paints are very resistant and have a nice appearance. In the USSR only polyvinylacetate paints are produced. The latexes are produced by polymerization or copolymerization of various monomers in water emulsion. The properties of the films depend on those of the initial materials. Polymers with high molecular weight form coatings with high mechanical and alkali resistance. Synthetic latexes with particles of 0.2 - 10 μ hold an intermediate position between colloidal sols and suspensions. Emulsion systems are very sensitive to the pH of the medium. Divinylstyrene mixtures are polymerized at a high pH value, vinyl polymers at a low value. The presence of electrolytes affects the water-resistance of the films. Polystyrene latexes are used for atmosphere-resistant coatings. Emulsifiers, which are surface-active substances, are very important for obtaining high-quality coatings. Protective colloids prevent the latexes from coagulation. These colloids are carboxy-

Card 1/3

methylcellulose, starch, ammonium caseinate, etc. The size of the colloidal particles determines the stability and the thixotropic properties of the latex. High temperature reduces the protective properties of the colloid. The pigment dispersion must be well deflocculated and stabilized Fillers improve the water-resistance and the adhesion of latex paints. Talc, mica and spar are used for this purpose. The relation between the volume of the pigment and the volume of the binding material is very important for determining the properties of the coating. The consistency of the latex paint should be high to avoid precipitation during storing and flowing down from painted surfaces. The mixing of the pigment dispersion and the latex is carried out by various mixers. Divinylstyrene paints are very resistant to alkali, washing, etc, but age rapidly. The drawback of polyvinylacetate paints is their low water-resistance. The Vsesoyuznyy nauchno-issledovatel'skiy institut sinteticheskogo kauchuka imeni Lebedeva (All-Union Scientific Research Institute of Synthetic Rubber imeni Lebedev) has developed methods for preparing divinylstyrene latexes. Paints are developed by the Kafedra lakov i krasok Leningradskogo tekhnologicheskogo instituta imeni Lensoveta (Chair of Varnishes and Paints of the Leningrad Technological Institute imeni Lensovet) and by the Gosudarstvennyy issledovatel'skiy i proyektnyy institut GIPI-4 (State Research and Designing Institute GIPI-4). Research in the field

of polyvinylacetate paints is carried out by the Laboratory of the Leningradskiy lakokrasochnyy zavod imeni D.I. Mendeleyeva (Leningrad Varnish and Paint Plant imeni D.I. Mendeleyev). The production of these paints is insufficient and should be increased considerably.
There are 33 non-Soviet references.

PEYZNER, A.B.; LEBEDEV, A.V.; FERMOR, N.A.; ROZENGARDT, Ye.V.; ZHEBROVSKIY, V.V.; LIVSHITS, Kh.M.; DRINBERG, A.Ya. [deceased]; KOBETSKAYA, V.M.; USITINOVA, O.N.

Synthesis of styrene-butadiene latexes and the production of paints derived from them. Lakokras.mat. i ikh prim. no.2:7-12 '61. (MIRA 14:4)

(Paint) (Butadiene)

ZHEBROVSKIY, V.V.; LIVSHITS, Kh.M.; SHENDEROVICH, L.I.

Lacquers and paints from modified epoxy resins. Report No.1. Preparation of epoxy esters from epoxy resins and fatty acids of vegetable oils. Lakokras. mat. i ikh prim. no.5:11-15 '61. (MIRA 15:3)

(Protective coatings) (Paint materials)

ZHEBROVSKIY, V.V.; LIVSHITS, Kh.M.; KOTOVA, M.A.; NOVOZHILOVA, V.I.

Paint materials based on modified epoxide resins. Report No.2: Coatings based on epoxy resins modified by diisocyanates. Lakokras.mat.i ikh prim. no.1:3-8 '62. (MIRA 15:4)
(Protective coatings) (Epoxy resins)

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S/137/60/000/012/015/041
A006/A001

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Translation from: Referativnyy zhurnal, Metallurgiya, 1960, No. 12, p. 126, # 29068

AUTHORS: Gorev, K.V., Livshits, K.V.

TITLE: Sulfitization in Liquid Bath

PERIODICAL: Sb. nauchn. tr. Fiz.-tekhn. in-t AN BSSR, No. 5, pp. 126 - 132

TEXT: The author studied the effect of hyposulfite and potassium ferrocyanide admixture when sulfitizing У 10 (U10) steel and Armco-Fe, on their wear resistance. Sulfitizing was conducted in a liquid bath composed of 45% $CaCl_2$, 30% $BaCl_2$ and 20% NaCl with addition of 6% hyposulfite and 4% potassium ferrocyanide separately or jointly at 550°C. U10 steel specimens were subjected to quenching and tempering at 560°C. Their wear resistance was determined on a MИ (MI) machine during friction without lubricant at a constant pressure as high as 30 kg (specific pressure 15 kg/cm^2). It was found that sulfitizing in a bath containing potassium ferrocyanide yields approximately the same results as sulfitizing in a bath containing both potassium ferrocyanide and hyposulfite.

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S/137/60/000/012/015/041
A006/A001

Sulfitization in Liquid Bath

Microinspection has shown that in the presence of potassium ferrocyanide in the bath, nitriding of the specimens takes place rather than sulfitizing, and that hyposulfite only speeds-up this process. The possibility is considered of speeding-up the cyaniding process with the aid of hyposulfite.

M. Sh.

Translator's note: This is the full translation of the original Russian abstract.

Card 2/2

KUZOVKIN, B., inzh. (Orenburg); VOLIN, P. (Vil'nyus); LIVSHITS, L., inzh. (Moskva)

Conceived-achieved. Izobr.i rats. no.5 (201):27 '63. (MIRA 16:7)

1. Korrespondent zhurnala "Izobretatel' i ratsionalizator" (for Volin).

(Technological innovations)

LIVSHITS, L.A.

Transportation of deep-well pumps in trucks. Neftianik 2 no.8:22 Ag '57. (MIRA 10:10)

1.Nachal'nik uchastka No.8 Leninnefti.
(Oil well pumps--Transportation)

25638

18.8200 2808, 1327

S/032/61/027/007/009/012
B110/B203

AUTHORS: Livshits, L. A., and Rakhmanov, A. S.

TITLE: Appearance of the fracture as a criterion for estimating the brittleness

PERIODICAL: Zavodskaya laboratoriya, v. 27, no. 7, 1961, 899-903

TEXT: According to N. N. Davidenkov (Ref. 4: Zavodskaya laboratoriya, XXI, 10 (1957)), Ye. M. Shevandin (Ref. 3: Sklonnost' khrupkosti nizkolegirovannykh staley, Metallurgizdat (1953)) established a close relationship between the fibrous structure of a fracture and the critical temperature of brittleness determined by means of resilience. T. A. Vladimirskiy (Ref. 5: Khrupkost' stali, Mashgiz (1959)), however, showed that the critical temperature of brittleness and the temperature of granulation of the fracture are different criteria of brittleness. B. A. Drozdovskiy and Ya. B. Fridman (Ref. 6: Vliyaniye treshchin na mekhanicheskiye svoystva konstruktsionnykh staley, Metallurgizdat (1960)) studied the dependence of the fibrous structure of a fracture on the final work of the fracture under static bending. The present paper deals with the resilience components and

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Appearance of the fracture as a ...

the appearance of the fracture (percentage of fibrous structure) of standard samples with Menaget notch on steels of the grades 20 (0.19% C; 0.24% Si; 0.48% Mn; 0.030% S; and 0.026% P; σ_B = 48.3 kg/mm^2; σ_S = 28.7 kg/mm^2; δ_5 = 32.6%; ψ = 63%; α_H = 16 KG-m/cm^2) and 12MX (12MKh) (0.11% C; 0.24% Si; 0.52% Mn; 0.48% Cr; 0.44% Me; 0.032% S and 0.020% P; σ_B = 46.2 kg/mm^2; σ_S = 33.2 kg/mm^2; δ_5 = 34%; ψ = 66%; α_H = 21.5 kG-m/cm^2). The samples were (I) fully tempered (heated in the furnace to 950°C for 1 hr, cooled down to 650°C, then to 400°C at 50°C/hr, and then completely), and (II) from 880°C in water at 620°C hardened (Table 1). The differentiation of structural components was highest in (I): coarse ferrite grain; in (II): small uniform mixture of structural components: small-size ferrite grain. Besides the bending angle, it was also attempted to estimate the cross-sectional reduction in the central, and the cross-sectional increase in the lower part to find the most sensitive and dependable criterion of plasticity. The attempts of estimating the plasticity in impact bending were only made on 12 MKh samples not subjected to thermal treatment. The relative necking (Fig. 1) was measurable at l_o, the widening at l'_o.

Card 2/8

According to the authors' method (Ref. 7: Zavodskaya laboratoriya, XXIV, 5 (1958); Nos. 2 and 12 (1959)), an impact pendulum was used, the work of which was increased up to sample destruction. The results obtained for MKh not subjected to thermal treatment (Fig. 3) showed that the character of the change in relative elongation and necking in the final stages of deformation differed slightly from that of the change in the bending angle. Here, the dependence is less straight-lined. In the graph showing the plasticity characteristics as dependent on the work absorbed, the complex resilience may be subdivided into: (1) deformation work α_d, and (2) rupture work α_r (Fig. 3). The error made in calculating the plasticity characteristics from the change in sectional dimensions along the site of fracture may considerably affect, even at 0.05 mm, the test results and, consequently, the resilience components. All bending angles must be acknowledged as a plasticity criterion. α_d and α_r were determined from curves for the dependence of bending angles on the amount of work absorbed (Table 2). A comparison of the fibrous structure in % of the section area with the resilience and its components (Table 2) shows that only α_r changes in analogy to the fracture appearance. This clearly shows the capacity of the metal

Appearance of the fracture as a ...

to resist the fracture development (destruction work α_r) but not the deformation work α_d (resistance of the metal to cracking). Since it does not give any indication on the 2nd component, it cannot characterize the resilience. It can only be used for judging the tendency of the metal for (A) propagation of brittle destruction, but not its (B) origin. The larger the fibrous structure of the fracture, the more is (A) slowed down. The α_r dependence of the fibrous structure is independent of thermal steel treatment. This should be checked on steels forming distinctly different structures by thermal treatment. The different gradients of steel curves may be explained as follows: The same properties are expressed in different steels by different fracture appearances. This requires different scales. If, for instance, $\alpha_r = 2$ kgm/cm^2, steel 20 has about 30% fibrous structure of the fracture, steel 12 MKh, however, about 50%. There are 4 figures, 2 tables, and 7 Soviet-bloc references.

ASSOCIATION: Vsesoyuznyy nauchno-issledovatel'skiy institut po stroitel'stvu magistral'nykh truboprovodov (All-Union Scientific Research Institute for the Construction of Main Pipelines)

LIVSHITS, L.A.

Fishing tool. Neftianik 7 no.7:17 Jl '62. (MIRA 16:3)
(Oil wells—Equipment and supplies)

LIVSHITS, L.A.

Using a newly designed catcher in the exploitation of wells with sucker rod pumps. Neft.khoz. [illegible] no.11:27-25 [illegible]. [illegible]

LIVSHITS, L. D

AUTHORS: Ryabinin, Yu. N., Livshits, L. D., Vereshchagin, L. F. 57 -10-18/33

TITLE: Plasticity of Brass at Superhigh Pressures (Plastichnost' latuni pri sverkhvysokikh davleniyakh)

PERIODICAL: Zhurnal Tekhn. Fiz., 1957, Vol. 27, Nr 10, pp. 2321-2325 (USSR)

ABSTRACT: The mechanical properties of brass were investigated at pressures up to 30 000 kg/cm^2. The appearance of the break as well as the micro section surface showed that the plasticity of brass increases essentially under pressure. The plastic deformation degree of the torn patterns can be expressed quantitatively by the value of the true deformation: $A=\ln(S_o/S_p)$. S_o is the cross section before the experiment and S_p the cross section at the rupture locations. It was evident that the occurring saturation of the plasticity curve which is characteristic of brass is not the result of defects of the material. The experiments also confirm that the plasticity curve changes into a saturation. This takes place at 4000 kg/cm^2. The actual deformations occurring in the case of breaking of the patterns were somewhat smaller than the theoretical ones. It was shown that the plasticity increases essentially up to a pressure of 3000 kg/cm^2 and approaches then, as already mentioned at 4000 kg/cm^2 saturation. Thus a new kind of the de-

Card 1/2

Plasticity of Brass at Superhigh Pressures. 57-10-18/33

pendence of the plasticity on pressure was detected, as the author determined. There are 3 figures and 5 Slavic references.

ASSOCIATION: Laboratory for the Physics of Superhigh Pressures AN USSR, Moscow (Laboratoriya fiziki sverkhvysokikh davleniy Akademii Nauk SSSR, Moskva)

SUBMITTED: March 2, 1957

AVAILABLE: Library of Congress

Card 2/2

Livshits, L. D.

SOV/120-58-2-20/37

AUTHORS: Ryabinin, Yu. N., Vereshchagin, L. F., Balashov, D. B. and Livshits, L. D.

TITLE: Equipment for Mechanical Studies of Metals at Pressures up to 30 000 kg/cm^2 (Apparatura dlya mekhanicheskikh issledovaniy metallov pri davleniyakh do 30 000 kg/cm^2)

PERIODICAL: Pribory i Tekhnika Eksperimenta, 1958, Nr 2, pp 79-85 (USSR)

ABSTRACT: A description is given of an apparatus which produces a hydrostatic pressure of up to 30 000 kg/cm^2 in a liquid enclosed in a chamber 13 mm in diameter and 40-70 mm long. The principle of the device is illustrated in Fig.1. The high pressures are produced within a chamber drilled in a conical metallic body. In order to be able to withstand pressures greater than 20 000 kg/cm^2 this conical member is supported by a close fitting female cone. Experiments have shown that the best angle of this cone is 5°. The same value was used by Bridgman (Refs.1 and 5). The multiplicator is also of the type described by Bridgman in Refs.5 and 6. The multiplicator is shown diagrammatically in Fig.3. The apparatus was designed for experiments on various specimens placed within the pressurised region. The force applied to the specimens is measured by a "compressimeter" described by Bridgman in

Card 1/2

Equipment for Mechanical Studies of Metals at Pressures 30 000 kg/cm^2.

Ref.2. The pressure was measured by a manganin manometer. The apparatus has been used to investigate the behaviour of steel at high pressures. Fig.8 shows photographs of steel specimens stretched to breaking point under various pressures. There are 8 diagrams, no tables and 10 references, of which 3 are English, and the rest Soviet.

ASSOCIATION: Laboratoriya Fiziki sverkhvysokikh davleniy AN SSSR (Laboratory of Ultra-high Pressure Physics of the Academy of Sciences USSR)

SUBMITTED: July 25, 1957.

Card 2/2 1. Metals--Mechanical properties 2. Metals--Pressure
3. High pressure equipment--Applications

SOV/ 57-28-7-3/35

AUTHORS: Ryabinin, Yu. N., Livshits, L. D., Vereshchagin, L. F.

TITLE: On the Change of the Electric Conductivity of Silicon at Superhigh Pressure (K voprosu ob izmenenii elektroprovodnosti kremniya pod sverkhvysokim davleniyem)

PERIODICAL: Zhurnal tekhnicheskoy fiziki, 1958, Vol. 28, Nr 7, pp. 1382 - 1386 (USSR)

ABSTRACT: First it is shown that the results obtained by P.W.Bridgman (Refs 2 and 8) are not constant and, to a certain extent, uncertain. A measurement of the electric conductivity of silicon of the p-type in dependence on the pressure is repeated. A silicon monocrystal, produced according to the method of Chokhral'skiy at the State Institute of Rare Metals was used as sample. It had the form of a parallel epiped with 9,8 x 5,8 x 4,0 mm. A Wheatstone bridge of the type MKL-49 was used for the measurement of the electric resistance. A multiplier (analogous to that of Bridgman) which was developed in the laboratory of the authors was used for the measurement of the sample resistance under high hydrostatic pressure. The measurements were

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started with the determination of the amount of the temperature factor of the electric resistance α at atmospheric pressure. They show that the sample resistance does not change in the case of an alteration of the current polarity and is independent of the amount of amperage in the region of 0,2 ÷ 10 mA . The specific sample resistance at 20° amounted to 18,4 ohm cm. The measurement of the sample resistance was carried out gradually up and down under pressure. It was found that the electric resistance of silicon is reduced with increasing pressure. It was shown that pure silicon of the p-type has the same effect sign as germanium of the p-type and selenium (Ref 2,5 resp.). No such great hysteresis of the silicon resistance by the pressure was observed as in the case of Bridgman. It is pointed out that the electric resistance in the case of silicon of the p-type is to a great extent influenced by the chemical purity, the composition of the admixture, the thermal and mechanical pretreatment. S. A. Ratenberg put the silicon crystal at the authors' disposal. N.I.Chetverikov helped to produce the contacts. There are 2 figures and 10 references, 3 of which are Soviet.

On the Change of the Electric Conductivity of Silicon at Superhigh Pressure

507/57-29-7-3/35

ASSOCIATION: Laboratoriya fiziki sverkhvysokikh davleniy AN SSSR Moskva (Laboratory of the Physics of Superhigh Pressures, AS USSR, Moscow)

SUBMITTED: October 2o, 1957

1. Silicon--Conductivity

Card 3/3

RYABININ, Yu.N.; LIVSHITS, L.D.; VERESHCHAGIN, L.F.

Plasticity of some alloys at high pressures. Fiz. tver. tela 1 no.3:476-481 Mr '59. (MIRA 12:5)
(Alloys--Testing)

PHASE I BOOK EXPLOITATION SOV/4750

Beresnev, B.I., L.F. Vereshchagin, Yu.N. Ryabinin, and L.D. Livshits

Nekotoryye voprosy bol'shikh plasticheskikh deformatsiy metallov pri vysokikh davleniyakh (Some Problems of Large Plastic Deformations of Metals at High Pressures) Moscow, Izd-vo AN SSSR, 1960. 79 p. Errata slip inserted. 3,500 copies printed.

Sponsoring Agency: Akademiya nauk SSSR. Institut fiziki vysokikh davleniy.

Resp. Ed.: S.I. Ratner, Doctor of Technical Sciences; Ed. of Publishing House: K.P. Gurov; Tech. Ed.: L.A. Lebedeva.

PURPOSE: This booklet is intended for technical personnel engaged in the extrusion of metals.

COVERAGE: The booklet presents a summary and analysis of the results of experiments in the investigation of plastic deformation of metals under high pressures. These experiments were conducted during the last few years at the Institut fiziki vysokikh davleniy AN SSSR (Institute of the Physics of

Card 1/4

High Pressures of the Academy of Sciences USSR) as part of a program for studying the physics of solids under high pressures. F.F. Voronov, V.A. Shapochkin, and Ye. V. Zubova collaborated with the authors in carrying out experiments at the instutute. The authors discuss the effect of hydrostatic pressures on the plasticity of metals, the flow of metals in extrusion by high-pressure liquid, the mechanical properties of metals extruded by this method, and the use of this method in the extrusion of fancy shapes and tubing. There are 52 references: 47 Soviet, 4 English, and 1 German.

TABLE OF CONTENTS:

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S/126/60/009/05/013/025
E021/E335

AUTHORS: Livshits, L.D., Genshaft, Yu.S. and Ryabinin, Yu.N.

TITLE: The Polymorphic Transformation of Cerium Under Pressure

PERIODICAL: Fizika metallov i metallovedeniye, 1960, Vol 9, Nr 5, pp 726 - 732 (USSR)

ABSTRACT: Experiments were carried out by the method of displacement of a piston in apparatus for measuring the volume compressibility of solid bodies (Figure 1). This consists of a hydraulic press, a piston and a piezometric device, together with measuring apparatus. Cerium of three compositions was used - Nr 1 contained La $<$ 0.01%, Nd $<$ 0.5%, Pr $<$ 0.5%, Fe $<$ 0.02% ; Nr 2 was that used in earlier work (Ref 2); Nr 3 contained La $<$ 0.3%, Nd $<$ 0.75%, Pr $<$ 0.75%, Fe $<$ 0.1%. Curves of displacement of the piston ΔH against the force F were drawn and these are reproduced in Figure 2. These show that there is a strongly expressed hysteresis effect. In the region of the phase transformation the pressure of transformation p_n is determined as the mean arithmetic value of p_1 and p_2, where p_1 and p_2 correspond to

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The Polymorphic Transformation of Cerium Under Pressure

the transition from one phase to another with increasing and decreasing pressure. From a series of measurements curves of temperature against p_n were obtained for the three types of cerium (Figure 3). These are straight lines parallel to one another. They show that an increase in purity leads to a decrease in the pressure of transformation at a given temperature and an increase in temperature of transformation at a given pressure. The "real" hysteresis can be found by carrying out experiments with different hydrostatic conditions to allow for the effect of friction. Electrical resistance measurements can be used to show polymorphic transformations. Figure 4 shows a curve of electrical resistance against pressure for cerium Nr 1. This shows a hysteresis at 20.5 °C of 1 600 kg/cm^2. Further experiments showed that "real" hysteresis was 1 550 kg/cm^2. Figure 5 shows the change in the total hysteresis with temperature. An increase in temperature decreases the width of the hysteresis loop. At 200 °C the width of the "real" hysteresis loop is less

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The Polymorphic Transformation of Cerium Under Pressure

than the experimental error. It is further shown that at temperatures greater than 280 °C and pressures greater than 18 500 kg/cm^2 no change in volume, i.e. no phase transformation of the first order, can take place. There are 5 figures and 10 references, 6 of which are English, 1 French and 3 Soviet.

ASSOCIATION: Institut fiziki vysokikh davleniy AN SSSR (Institute of High-pressure Physics of the Ac.Sc., USSR)

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B101/B207

AUTHORS: Livshits, L. D., Genshaft, Yu. S., Markov, V. K., Ryabinin, Yu. N.

TITLE: Compressibility and phase diagram of polytetrafluoro ethylene at high pressure

PERIODICAL: Vysokomolekulyarnyye soyedineniya, v. 3, no. 4, 1961, 624-629

TEXT: This paper deals with the study of the behavior of polytetrafluoro ethylene (fluoroplast-4, teflon) at high pressure and high temperature considering the fact that this material is widely applicable in high-pressure engineering. Moreover, measurements were made in a wider range of temperature and pressure than listed by the published data available. The following parameters were determined: 1) the volume compressibility in the piezometer according to the piston displacement method. The error of pressure measurement was ± 150 kg/cm^2; the error of volume decrement determination was less than 5%. By means of the apparatus described in Ref. 6 (L. D. Livshits et al., Fizika metallov i metallovedeniye (Metal Physics and Metallography). Metallurgizdat, Sverdlovsk, 2, 726, 1960), pressures

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up to 30,000 kg/cm^2 and temperatures up to 300°C could be reached. 2) The linear compressibility was measured by a recording method similar to that developed by P. W. Bridgman (Ref. 7, see below). Measurement was carried out under hydrostatic conditions. Teflon rods, 57 and 200 mm long, density 2.21 g/cm^3 served as samples. 3) The isobaric measurement of the thermal expansion of teflon at different pressure was measured with the same apparatus. The phase diagram, Fig. 2, was plotted on the basis of the data obtained. The phases were denoted according to C. E. Weir (Ref. 2, below). The triple point of the diagram lies at 5000 kg/cm^2 and 66°C. The Table shows the volume decrements $\Delta v/v_0$ at different pressure and temperature. The following was found: 1) The compressibility of phase III is considerably smaller than that of I and II. 2) The polymorphic transition from II to III (at 20°C) is accompanied by a jump of volume change by 2%. The transition from I to II (at 90°C) is accompanied by a jump of volume change by 2%. Fig. 3 indicates that the jump in volume change decreases with increasing temperature. The blurredness of the II-III transitions due to hysteresis may be reduced if the sample is kept for 1 hr at constant pressure. 3) Between 30-100°C and up to 4000 kg/cm^2 pressure in phase I small jumps were observed in the linear and volume compressibility, that were ir-

reproducible and due to several superimposing crystalline transformations of teflon. 4) These irregularities and the curvature of the I-II transition curve indicates the presence of a further singular point at 65°C and 4000 kg/cm^2. There are 3 figures, 1 table, and 8 references: 1 Soviet-bloc and 7 non-Soviet-bloc. The 4 references to English language publications read as follows: P. W. Bridgman, Proc. Amer. Acad. Arts and Sci., 76, 3, 55, 1948; C. E. Weir, J. Res. NBS, 50, no. 2, 1953, R. P. 2395; R. J. Beecroft, C. A. Swenson, J. App. Phys., 30, 1793, 1959; P. W. Bridgman, Proc. Amer. Acad. Arts and Sci., 58, 165, 1923.

ASSOCIATION: Institut fiziki vysokikh davleniy AN SSSR (Institute of High-pressure Physics, AS USSR)

SUBMITTED: August 17, 1960

Fig. 2. Phase diagram of teflon. Legend: o) data obtained by means of piston displacement; Δ) data of linear compressibility at constant temperature; X) data of isobaric measurement; ----: hysteresis.

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B108/B186

AUTHORS: Genshaft, Yu. S., Livshits, L. D., Ryabinin, Yu. N. (Moscow)

TITLE: Determination of the phase parameters of solid bodies at high pressures by using the method of shifting a piston

PERIODICAL: Zhurnal prikladnoy mekhaniki i tekhnicheskoy fiziki, no. 5, 1962, 107-116

TEXT: The known method by P. W. Bridgman (The Physics of High Pressure. London, 1949; The Compression of 46 Substances to 50,000 kg/cm^2. Proc. Am. Acad. Art. Sci., 1940, v. 74, no. 3) to determine the compressibility of solid bodies at 30,000 kg/cm^2 within the temperature range from 20 to 150°C is explicitly described. On the basis of experimental data, corresponding calculations were made for Pb, AgCl, CsCl, pyrophyllite, lithographic limestone, graphite, BN, Bi, and Tl. By means of this method data on the melting of substances under pressure can be derived from the discontinuity of volume, and the phase diagrams can be studied over wide ranges of temperature and compression. The temperature coefficient of volume expansion (β), depending on pressure, was determined for Pb, AgCl, graphite, BN, Tl, and Bi (Table 7). There are 1 figure and 7 tables.

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